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# CTI - Global Engineering Lab
# Warren Lab 10, NJ
# Process Control Manual

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**Revision History:**

| Revision History | | | |
|---|---|---|---|
| Date | Rev. No. | Author (init.) | Modification |
| 4/18/05 | 1.0 | CM | Initial Draft |
| 6/14/05 | 1.1 | CM | Restructured table in Section 2, minor edit, inserted GE share, embedded Installation request form. |
| 7/26/05 | 1.2 | CM | Edited roles for clarity and consistency, removed installation form and inserted link, various other edits based on group feedback. |
| 8/19/2005 | 1.3 | CM | Revisions based on peer feedback. |
| 8/11/2006 | 1.4 | CM/PH | Revisions required due to the migration/consolidation of the 388G, 250W, 111W, and Rutherford lab environments to Warren Lab #10. |
| 11/06/2006 | 1.5 | CM | Added Section 1.3 "Intended Audience". Expanded on Section 10 "Terms and Conditions for Lab usage" section and added "Lab Best Practices" to the heading. Updated hyperlinks to all external documents. |
| 2/22/07 | 1.52 | CM | Added like for like swap procedure in Section 10.1.2 and restructured section 10.1 |
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## 1. Introduction

### Purpose of Document

The CITM Policy document requires organizations to define their processes and procedures to identify, measure, monitor, and control technology-related risk.    This Process Control Manual has been developed to address the requirements of the Global Engineering Warren lab.    These processes include:

1. An annual review of the Global Engineering lab environments/firewalls by the associated CTI- GE Team Leads.
2. A determination of the specific risk management categories applicable to the lab.
3. A methodology for maintaining the security and integrity of the lab environment.
4. A methodology for maintaining hardware and software inventories.
5. Operational Best Practices and terms for lab usage.

This document discusses the processes and procedures used by the CTI Global Engineering (CTI-GE) group in meeting these requirements.

### Purpose of CTI-GE Warren Lab

The CTI-GE mission is "To develop standards based technology that meets all of the relevant information security standards, policies and practices that govern our business, as they relate to technology infrastructure and operational risk management in the infrastructure environment while meeting our customer's needs for newer and cost effective technology solutions." To achieve this end, CTI-GE has established a lab environment in  Warren for lifecycle testing and certifying standard technology solutions prior to recommendation and deployment.

### Intended Audience

The intended audience for this document is all Global Engineering staff and anyone looking to familirize themselves with Global Engineering Lab #10 process, procedure, and best pratice.

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### 2. Lab Roles and Responsibilities

The CTI-GE Warren test lab environments are used for the testing, development and certification of new technology, along with the testing of new or unique installation configurations. Global Engineering maintains ultimate ownership of the lab, which is managed by the Lab Coordination Team in support of the product development teams who primarily reside within Warren and other NY Metro facilities. Disciplines residing in the Warren can be found at: CTI GE Org Charts.

Utilization of lab resources is coordinated through the Lab Coordination Team, respective Engineering Teams, and Team Leads.

| Role - 388G/12 CTIGE Lab | Responsible | Function |
|---|---|---|
| Teams – Team Leads | Can be found organized by Discipline at: CTI GE Org Charts | 1. Responsible for submitting lab request.<br>2. Vendor primary POC<br>3. Responsible for Test Bed Design and configuration<br>4. Responsible for VTM and operational support on team lab devices<br>5. Validates compliance with testing, subsequent documentation, distribution of results and other CITMP requirements of Engineered products<br>6. Responsible for arranging equipment delivery and return<br>7. Responsible for paying for lab power modifications<br>8. Responsible for "test segment" IP address management |
| Lab Coordination Team<br><br>E-mail Alias: *gt global engineering lab support | Carmelo Millan<br><br>Naseer Ibrahim | 1. Responsible for "Core Lab" Network Support<br>2. Responsible for Lab Space Allocation<br>3. Responsible for Lab Coordination<br>4.<br>5. Physical Lab access control and yearly reconciliation<br>6. Annual Insurance Questionnaire compilation, with help from the Teams.<br>7. Responsible for all Lab connectivity, patching, racking, stacking<br>8. Inter-Engineering Discipline liaison, when appropriate<br>9. Overall lab caretakers/gatekeepers<br>10. SME Peer group interaction when necessary<br>11. Responsible for "management segment" IP address management |
| Physical Access Entitlement Coordinator | Lab Coordination Team<br><br>in conjunction with | 1. Performed annually to make sure individuals w/ physical access to lab are approved to do so |

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|  | Team Leads |  |
|---|---|---|
| Hardware Inventory Control | Lab Coordination Team | 1. Responsible for initial hardware inventory entry when equipment received<br>2. Responsible for hardware inventory removal when equipment is retired |
| Software License Maintenance | Teams – Team Leads | 1. Responsible for software license Maintenance |
| Annual Insurance Questionnaire | Lab Coordination Team | 1. Responsible for compilation of annual Insurance Questionnaire with help from teams. |
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## 3. Environment Controls

### 3.1. Physical Security and Authorized Access

Authorized access to the CTI-GE Lab is restricted to essential engineering personnel. Entry to its location is managed via an access card system. Employees within the Global Engineering group can request access through email communication to the Lab Coordination Team. The Team Leads and Lab Coordination Team will provide final approval for parties requesting access. Upon receiving approval, the GE employee's access card will be permissioned by the local security administration.

Access to network devices, servers, applications, and tools are maintained by logical access mechanisms that are granted and maintained by the individual Teams utilizing the Lab.

Vendors must be escorted at all times, it is the responsibility of the authorized individual providing physical access to escort the vendor.

Logical entitlements for vendors will be handled based on nature of vendor activity. The Teams handle logical entitlements for vendors. It is their responsibility to determine, maintain, track, and terminate the proper level of entitlement for the vendor activity being performed.

### 3.2. Installation Requests, SLA's, and Standardized Lab Device Nomenclature

All requests for equipment installations, rack & stacks, connectivity, or topology builds are made through the Lab Coordination Team. The requestor will be asked to fill out the Lab Request Form, which can always be found at:

Lab Request Form

and submit to the "*GT Global Engineering Lab Support" alias. The "Lab Installation Request Form" will be used to determine space, thermal, and power requirements. As well as, classify the type of test environment being requested.

Lab requests will be addressed on a first come first served basis. A projected completion date for the request will be provided. The date supplied will be a direct function of the then current workload. The projected completion date will be based on the following:

- o Number of pending requests
- o Scope and complexity of pending requests

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   o Scope and complexity of what is being requested
   o Available resources

The lab installation request will be placed in queue once all test plans, topologies, and information have been received. Any changes/additions to the initial request can result in longer projected completion timeframe.

All devices installed in the lab will adhere to the standardized lab nomenclature, which will include device cabinet or rack location, distinguishing device model #, and quantity of given device in cabinet or rack location. The standardized lab nomenclature will serve to quickly locate lab devices, assist in inventory and loaner management, and facilitate other control/operational lab procedures. If different names are required in DNS, they will be maintained as Aliases to the standardized lab name, and it will be the Team and Team Leads responsibility to keep track of them. All request for lab installs, decommissions, and support will be made based on the standardized lab name. **The Lab Coordination Team will only accept request based on the standardized lab nomenclature.**

The Standardize Lab Nomenclature will adhere to the following guidelines:

All lab device names will be completely lower case. There will be three dash-separated fields used as follows:

**rack/cabinet location – distinguishing model # - quantity of device at given location**

Lab names for rack mounted devices are assigned as follows, the first Catalyst 6500 residing in CPF1 Rack 1 will be given, "1r1-6500-01" as it's lab name. Similarly, the first Catalyst 6500 residing in rack CPF2 Rack 1 would be named "2r1-6500-01" and a Catalyst 6500 in CPF3 Rack1 would be named "3r1-6500-01".

Lab names for cabinet installs are based on location as well, if there where three HP Compaq DL380's in cabinet c01 in the lab they would be named, "c01-dl380-01", "c01-dl380-02", and "c01-dl380-03".

Please contact the Lab Coordination Team at, "*GT Global Engineering Lab Support" to suggest any clarification, changes, or problems with the Standardized Lab Nomenclature.

### 3.3. Test environment definitions

It is noted here that there are significant differences between how equipment is used in a Lab environment. Generally, we classify test networks and distributed equipment used in the GE Lab as "Core Lab", "Firewalled", "Isolated", or "Production". The following definitions will serve as the context for these terms in this document and on the lab installation form:

<u>Core Lab-</u> Used to describe network equipment that belongs to the "Core Lab" network. The "Core Lab" network facilitates most lab testing and interfaces with the production network via a production-managed firewall. No testing is conducted on these devices and the lab team manages them.

<u>Firewalled-</u> Used to describe lab devices, segments, or networks that connect to the "Core Lab" network. All of the Warren Lab #10 environments, with the exception of the SOE PC's in the community space and isolated environments, fall into this category. Control is provided by production "Change Management" procedures for all firewall related changes. The lab is treated just like any other non-trusted or 3rd party network.

<u>Isolated-</u> Used to describe equipment being tested as a standalone component or as part of an isolated system, infrastructure, or testing environment. In an isolated Lab environment there is no filtered or firewalled access with the production network and no routes are exchanged directly with the production network.

<u>Production –</u> Used to describe any device that resides on a network that is not firewalled from the GRN and receives full operational support from TI support organizations. The SOE PC's within the community space of the lab fall into this category.

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## 4.   Equipment Procurement

All equipment owners will follow the standard process for engaging technology procurement prior to the acceptance of any equipment loan or the attainment of evaluation software.  A copy of current evaluation documentation (requests, CRFs, etc) must be maintained by the equipment owner.  The latest "Procurement Procedure" can always be found at:

http://www.citigroup.net/tie/neteng/pcms/

As part of the Lab inventory documentation, evaluation equipment must clearly be identified as "evaluation", along w/ applicable inventory information such as model number(s), location, and trial period.  The equipment inventories, are maintained by the Lab Coordination Team and can be found at:

Global Engineering Lab Inventory/Connectivity Database

## 5.   Upgrades, patch maintenance, and VTM

The entire Warren Lab facility is segregated by firewall from the Global Router Network. Software upgrades, patch maintenance and VTM issues are the responsibility of the equipment owners.

## 6.   Software License Maintenance

All software being purchased for lab trials or engineering analysis, must be handled through Technology Procurement's standard process.  In the event the engineering effort requires an evaluation version of vendor software, at a minimum, the equipment owner must ensure that the vendor resides in CASP.  If the vendor is not in CASP a new supplier form must be filed with Technology Procurement.  The CTI-GE team is responsible, where deemed appropriate, for acquiring the maintenance of software in the lab. It is the equipment owner's responsibility to ensure that their equipment has valid software contracts and/or licenses where applicable.

## 7.   Continuity of Business (COB)

Continuity of Business is not required for the lab environments, as they have no direct impact on the immediate production environment.

## 8.   Inventory Control & Insurance Questionnaire

The CTIGE Lab consists of a variety of hardware and software.

An accurate inventory of the software will be maintained by the Teams and must be reconciled at least annually.

An accurate inventory of the hardware will be maintained by the Lab Coordination Team and must be reconciled at least annually. Updates are made to inventories, as Lab Request are completed. An annual Insurance

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Questionnaire, based on the GE Team Software inventories and Lab Coordination Team hardware inventory, will be completed by the Lab Coordination Team and maintained at the following location:

Global Engineering Annual Insurance Questionnaires

## 9. Lab compliance and security

The Lab Coordination Team will be responsible for completing a self-assessment (RCSA) on all lab procedures, lab hardware inventory, Annual Insurance Questionnaire, and Physical Access Control and entitlement review.

The Teams and Equipment owners will be responsible for Software Inventories, Vendor lab access, Logical Entitlements, and Upgrade, VTM, and Patch activities.

All "Core Lab" network related lab changes are submitted through the Lab Coordination Team and follow standard production procedures.

Firewall changes for test beds, must be submitted by the testing engineers and also follow standard production procedures.

## 10. Lab Best Practices / Terms and Conditions for Lab Usage

### 10.1. Lab Request Best Practice

#### 10.1.1. Lab Request for New Installs

To get new equipment installed in the lab the testing engineer needs to fill out the latest "Lab Request Form" and e-mail to "*GT Global Engineering Lab Support".

The same individual should be filling, submitting, and tracking any given request. We shouldn't receive a request from one person to have work performed for someone else.

The latest "Lab Request Form" can always be found at;

G:\Global Engineering Labs\Forms

Things to bear in mind when submitting lab request and arranging shipping:

- Request forms can be submitted as early as three weeks before the equipment is slated to arrive, please try to submit it ahead of time if possible
- When filling out the lab request form, please just don't just fill in your name and submit the form, we are looking for "best effort" not "a little effort"  :^)  the form should be filled out as completely as possible, if you need help please contact the lab coordination team through our alias
- Full devices enclosures, such as appliances, servers, and network devices, which are going to be installed in the lab should ship to the Lab Coordination Team. Small boxes and components, such as harddrives, memory, interface cards should ship to the testing engineers (the lab team shouldn't be tracking small boxes)

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- Large deliveries containing more that 10 RU of equipment should be cleared with the lab team prior to scheduling delivery, this rule is especially important for cabinet sized devices

- Equipment that is not destined for the lab should not be shipping to the lab, we are always tight on space and are not staffed to act as a shipping and receiving department

- The individual submitting the request form should be the same individual to whom the equipment is shipping to

- **Loaner packaging will not be saved unless "Ownership Status" is set to "Loaner" on the request form**

- The install requestor is always listed as the equipment owner in our lab records

- Equipment values should be detailed per device, this information is used to compile our Yearly Insurance Questionnaire

- Any power work will have to be covered by the requester's P&L.  Requester will provide power specification and P&L in notes section of request form, Lab Team will coordinate power work and assign location.  At least two weeks of lead time should be anticipated to get the power work completed

- All vendor coordination, assistance, scheduling, and escorting is the Requester's responsibility

### 10.1.2. Lab Request for Patchwork, Swaps, and Decommissions

- All patchwork and decommissions should be completed by the lab team and require a "Lab Request Form".

- Like for like swaps, can be completed by the equipment owner or vendor if the swap involves devices that are the same size, manufacturer, and model #'s.  They will still require a lab request form so that the Lab Team can review the work performed.  Swaps involving devices of different sizes, manufacturers, or model #'s will need to be performed by the Lab Team.

- These changes often require documentation updates and should always be performed by the Lab Team.

- Decommissioned equipment must leave the lab, we do not have enough space to store outdated gear.

- As part of the decommission procedure for loaner equipment the device will be packaged and prepared for shipping.  When complete the requester will be notified that they can e-mail Mail Services (Andrew Diaz) and the Lab support team to arrange pickup in Lab #10.  The e-mail should include the device name/s, "ship to" address, and P&L (in case shipping fees apply)

### 10.2. Lab Access Best Practice

The lab is not hoteling space, temporary seating space can be provided for vendors and consultants for up to three weeks, but is always based on the current lab seating capacity.  The Lab Team should always be consulted if you will have vendors or consultants sitting in the lab for more than a couple of days.

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The shared lab SOE workstations are for temporary use and should not be depended on as permanent workstations for visiting vendors or consultants.

Vendors should not be allowed in the lab without a Global Engineering employee escorting them in, staying with them while they do their work and then escorting the vendor out.

Consultants can be classified into two categories;

Consultants that are working for a vendor and not classified as a Citigroup employees or extension of Citigroup staff should be treated as vendors (No badge)

Consultants that are hired as an extension of Citigroup Global Engineering staff, should have the same access as a full time employee in order to get their work completed (Red badge)

Access to Lab #10 can be requested by sending an e-mail with our badge ID to *gt global engineering lab access cc:'ing your direct manager.

Lab doors should never be left propped open without consulting the Lab Team.

Nothing should be left in the lab without the Lab Teams consent.

### 10.3. Lab Support Best Practice

SA level support, iLO configuration, OS installs, IOS upgrades, device configurations, software installations, firmware updates, IP addressing, firewall request, etc. are the responsibility of the engineering staff.

Evaluating incoming lab requests, rack, stack, connectivity allocation/management/support, space allocation/management, terminal server allocation/management/support, KVM allocation/management/support, equipment tracking, coordinating power modifications/upgrades, and maintaining/supporting the core lab network are the responsibility of the Lab Team.

Request for break fix support on connectivity related issues can be e-mailed to *gt global engineering lab support. All other lab workflows are covered by the Lab Request Form.

Hardware support for Wintel gear can be arranged via Virtual Tech Ticket.

Hardware support for Sun equipment can arranged by contacting SUN.

1)Call (877) SUN-0101 ( USA only )

2) When requested pin number PIN#: 12484

3)Give Contract Number - (contract number NK20176600)

4) Provide the following information:

Give Address

Contact Name

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Phone Number

Pager Number

Problem Description

5) Record the Service Order Number for tracking and expediting your request.

### 10.4. Shipping and Receiving Best Practice

Things to bear in mind when shipping and receiving equipment into Lab #10:

Equipment destined for the lab should be addressed in the following fashion, if it is not the delivery will be refused:

**(Request Submitter Name)  c/o Lab Coordination Team Lab #10**

**Citigroup Warren Technology Campus**

**Building A - Lab #10**

**283 King George Rd.**

**Warren, NJ 07059**

Everything that is being shipped to or from Global Engineering Lab #10 must be approved directly by the Global Engineering Lab Coordination Team (Carmelo Millan or Naseer Ibrahim) prior to entering or leaving Lab #10 via the Mail Services group

Equipment should never be received from Mail Services or shipped through Mail Services, from Lab #10, by anyone outside of the Lab Coordination Team

Equipment coming into the Warren Campus destined for Lab #10 should first be received by Mail Services Central Receiving department in Building D and then be scheduled for delivery to Lab #10 by the Lab Coordination Team

Mail Services should contact the Lab Coordination Team whenever deliveries arrive addressed to our care

Equipment shipping or being received in Lab #10 should only be signed for directly by the Lab Coordination Team

The Lab Coordination team does not track packages we haven't received in Lab #10.  If you want to know if it was received by Mail Services please contact them directly

For Loaner returns it is the Global Engineering Staff's responsibility to submit a "Lab Request" for a decommission.  As part of the decommission for loaner equipment the device will be packaged and prepared for shipping.  When complete the requester will be notified that they can e-mail Mail Services (cc:'ing the lab support team) to arrange pickup in Lab #10.  The e-mail should include the device name/s, "ship to" address, and P&L (in case shipping fees apply)

For oversized and large shipments, direct delivery to Lab #10 can be arranged by contacting the Lab Coordination team and Mail Services (Andrew Diaz), via e-mail, prior to scheduling delivery.  This option is only available if we have space in Lab #10 to store the equipment or if it will be installed upon arrival

Equipment that is not destined for the lab should not be shipping to the lab, we are always tight on space and are not staffed to act as a shipping and receiving department

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